1057-62-239 **Shaowei Lin*** (`shaowei@math.berkeley.edu`), University of California, Berkeley, 970 Evans Hall #3840, Berkeley, CA 94720. *Asymptotic Approximation of Marginal Likelihood Integrals.*

The accurate asymptotic evaluation of marginal likelihood integrals is a fundamental problem in Bayesian statistics. Following the approach introduced by Watanabe, we translate this into a problem of computational algebraic geometry, namely, to determine the real log canonical threshold of a polynomial ideal, and we present effective methods for solving this problem. Our results are based on resolution of singularities, and they apply to all statistical models for discrete data that admit a parametrization by real analytic functions. (Received January 24, 2010)